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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,709	10/27/2005	Hiraku Kawasaki	DK-US030689	9367

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EXAMINER	
CLARK, GREGORY D	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
06/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,709	KAWASAKI, HIRAKU	
	Examiner	Art Unit	
	GREGORY CLARK	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/07/2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/09/2009, 05/18/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges the receipt of the Applicant's RCE request, received 5/18/2009. Claims 1-26, 30 and 43 cancelled; 27 and 40 amended; 28-39, 41-42 and 44-52.

Rejections and objections made in previous office action that does not appear below have been overcome by applicant's amendments and therefore the arguments pertaining to these rejections/objections will not be addressed.

Claim Objections

1. For the purposes of examination, the examiner takes the position that claim 32 depends on cancelled claim 30. Claim 32 is objected to as being an improper dependent claim. Under **37 CFR 1.75(c),** The examiner requires cancellation of claim 32 or rewriting of Claim 32 independent form.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 27-29, 31-33, 38-39, 40-42, 44-46 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya (JP 08-269367A) in view of Mizutani (6,013,724).**

4. **Regarding Claims 27, 31-32, 40 and 44-45,** Kamiya teaches the surface treatment of a plate-like substrate with a coating (paragraph 8 and abstract). Kamiya discloses that the coating resin / formulation is a blend of melamine resin or epoxy resin with an acrylic resin. Additionally, urethane resin, phenol resin, and polyester resin can be used (film forming components) (paragraph 14). The examiners notes the on page 13 line18 of the specification the applicant notes examples of two component resin which include acrylic melamine. This resin is identical to a resin disclosed by Kamiya (paragraph 14). Kamiya does not disclose any pre-treatment to the surface which would roughen the surface. The examiner takes the position take the plate substrate is without protrusions or depressions. Kamiya fails to mention the solvent medium or the amount of solvent used to apply the plate material coating. The applicant claims 1 to 10% and 1-5% alcohol based solvent.

Mizutani teaches a solvent based hydrophobic paint coating which uses an organic solvent selected from butanol, octanol, and diacetone alcohol (Column 40, lines 54-58).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the appropriate solvent at the appropriate concentration,

since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Stevens*, 101 USPQ 284 (CCPA 1954).

5. **Regarding Claim 28, 41 and 47**, Kamiya teaches the surface treatment of a plate-like substrate with a coating to impart a hydrophobic nature (paragraph 8) involving a perfluoroalkyl (hydrophobic organic) group functional silica material (paragraph 10).

6. **Regarding Claims 29 and 42,** Kamiya teaches the surface treatment of a plate-like substrate with a coating to impart a hydrophobic nature (paragraph 8). Kamiya presents data to show the plate-like substrate is rendered repellent to water after the coating treatment. Kamiya does not present the repellency data in the units of dyn/cm. Kamiya reports repellency by contract angle value (alternative means of reporting repellency). The applicant claims a surface tension of 25-35 dyn/cm.

It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust hydrophobic nature of the material selected to obtain the desire level of repellency the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

7. **Regarding Claims 33 and 46**, Kamiya teaches the surface treatment of a plate-like substrate with a coating to impart a hydrophobic nature (paragraph 8). Kamiya

presents data to show the plate-like substrate is rendered repellent to water after the coating treatment. Kamiya does not present the repellency data in the units of dyn/cm. The applicant claims a viscosity that is equal to or greater than 5 Pa-s and less than or equal to 20 Pa-s. Kamiya reports repellency by contract angle value (alternative means of reporting repellency).

It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust hydrophobic nature of the material selected to obtain the desire level of repellency the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

8. **Regarding Claims 38 and 51,** Kamiya teaches that the plate-like material used as the substrate for the surface treatments are made from aluminum/aluminum alloy and the plate-like material is of a radiation fin of a heat exchanger (paragraph 1).

9. **Regarding Claims 39 and 52,** Kamiya teaches that the plate-like material used as the substrate for the surface treatments are made from aluminum/aluminum alloy and the plate-like material is of a radiation fin of a heat exchanger (paragraph 1).

10. **Claims 34-37 and 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya (JP 08-269367A) in view of Mizutani (6,013,724) and further in view of Lever (5,079,087).**

11. **Regarding Claims 34 and 47-48**, Kamiya teaches a plate material treated with a fluoroalkyl containing silica (hydrophobic silica) thermoset resin to give the surface repellency to water (paragraph 10). Kamiya does not teach corrosion resistant treatment of the plate-like material.

Lever teaches the treatment of plate-like (heat exchange fins, Column 1, lines 8-10) with an activated alumina and a organic resin formulation (Column 2, lines 12-16) that imparts hydrophilicity and corrosion resistance to the plate-like material surface (Column 2, lines 33-37). Lever teaches that condensed water readily forms spherical drops as the surface of the fins that has a hydrophobic nature and these water droplets interfere with air flow in the spaces between the fins (Column 1, lines 19-22).

It would have been obvious to some one of ordinary skill in the art at the time of the invention to combined hydrophobic plate-material treatment of Kamiya with the hydrophilic and corrosion resistance plate-like treatment of Lever to give a means to prevent corrosion damage caused by water collecting on the fin surface and to prevent water droplets from interfering with air flow (Column 2, lines 33-37; Column 1, lines 19-22).

12. **Regarding Claims 35 and 48**, Lever also teaches a hydrophilic activated alumina and resin formulation used to give a hydrophilic nature to the plate-like material dispersed in volatile organic solvents (Column 2, lines 20-23).

13. **Regarding Claims 36-37 and 49-5-,** Both Kamiya and Lever do not teach the use of a chromic acid treatment or an oil removal treatment. Both Kamiya and Lever teach coating a plate-like substrate to achieve hydrophobic and hydrophilic surfaces.

As Kamiya and Lever use like materials (hydrophobic and hydrophilic based coating treatment) in a like manner (without chromic acid or an oil removal treatments) as claimed, it would be expected that the surfaces would have the same characteristics as claimed.

It would be expected that someone of ordinary skill in art at the time of the invention could have used the coatings taught by Kamiya and Lever to give hydrophobic or hydrophilic surfaces to the plate-like material without chromic acid or an oil removal treatments.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY CLARK whose telephone number is (571)270-7087. The examiner can normally be reached on M-Th 7:00 AM to 5 PM Alternating Fri 7:30 AM to 4 PM and Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794

GREGORY CLARK/GDC/
Examiner
Art Unit 1794